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## THE FUR-SEALS: THE AMERICAN CASE.

**I**N a recent article on the Behring Sea Controversy, Mr. H. W. Wilson\* vigorously abuses our American kinsmen for their protests against the continued destruction of the North Pacific herds of fur-seals. The article treats the subject from a point of view which is now quite out of date, and is an example of the misrepresentations of the American case which have done so much to embitter a difficult controversy. The position taken up by the United States in reference to the seals of the Behring Sea admits of easy misrepresentation. The claim to a vested interest in wild animals at sea beyond the three-mile territorial limit may be treated as the introduction into international law of a principle of the "vorland" analogous to the well-known doctrine of the "hinterland." If possession of a coast-line gives a nation the right to the wild animals of the adjacent seas, foreigners might be excluded from the Newfoundland cod-fisheries and the Dutch trawlers from the Doggerbank. Again, the United States' claim appears one-sided and selfish, as it would allow Americans to continue killing seals on shore, while it would deny British subjects the right to kill them anywhere. And it is easy to protest that the sole object of the United States Government is, by raising new issues, to reverse the decisions of the Paris Award.

Fortunately, however, the accurate investigations of Professor D. Starr Jordan, Professor D'Arcy Thompson, and their assistants during the past two summers, have raised the question to a stage in which the habits of the fur-seals are more relevant than those of American politicians.

As the question is now simply a problem of statistical biology, a British naturalist may be excused for asking whether the United

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States has an arguable case, or whether its demands rest on such empty impudence as Mr. Wilson would have us believe.

To understand the present aspect of the question, a knowledge of the habits of *Otaria ursina*, the North Pacific fur-seal, is essential. A brief sketch of its life history and peculiar domestic arrangements may be given with the less hesitation as they are of exceptional biological interest. The fur-seal, in the first place, is not a true seal at all. The true hairy, furless, earless seals belong to the order *Pinnipedia*. As Professor Mivart\* suggested in 1885, the fur-seals are so different from the true seals that they ought to be referred to a separate order; the order *Pinnipedia* has been accordingly established for them by Jordan and Lucas. While the ordinary seals are the descendants of an animal allied to the otter, the fur-seals are related to the bears, and may be regarded as descended from some bear-like animal that adopted a marine life.

The principal herd of fur-seals or eared-seals—known also as sea-bears or sea-cats—now live in the North Pacific. They were well known to the fur traders of the last century, who chased them as they migrated southward in the autumn along the Pacific coasts of Asia and America, and as they returned northward in the spring. The hunters knew that the females were pregnant during the latter season, and as they were never found with young pups at sea, it was concluded that they must resort to some Arctic shores to breed. Repeated efforts were made to discover the summer haunts of the seals; but it was not until 1786 that Gerassim Pribylov found the main herd, breeding on the islands which now bear his name.

The fur-seals live for most of the year entirely at sea, feeding upon fish, squids, and crustacea. But as the young cannot swim for the first month or six weeks of their life, they must be born on shore. Hence, in the early summer, driven by an irresistible instinct, "the matkas seek the shore to drop their pups aland." In describing the domestic system of the fur-seals, it is advisable to adopt the terminology used on the seal islands. The mixture of metaphor in this trade-slang has been often remarked; but the terms are so expressive and widely known that they are very convenient. Some of them, moreover, have been introduced into literature in Mr. Rudyard Kipling's "Rhyme of the Three Sealers." The seals on shore live on boulder-strewn beaches known as "rookeries." The herd is divided into families, the head of which is an adult bull known as a "sea-catch," an American corruption of an Aleutian corruption of the Russian word "silach," meaning an athlete or strong man. Each sea-catch is master of a "harem" of females, known as "matkas" from the Russian word for cow or mother. The young are called either "pups" or "kotichie," the latter name being derived from the Russian for

\* Proc. Zool. Soc., 1885, pp. 497, 498.

kitten. Owing to the great size of the harems of the "sea-catchie," many of the males have no chance of mating, and they live apart from the rest of the herd as bachelors or "holluschickie."

As soon as the ice melts away from the shore of the Pribylov Islands in May, or possibly the end of April, the old males begin to arrive and take up their stations in the rookeries along the shore. Each male takes possession of a small tract of beach, whereon to station his harem. Seals occupying positions nearest the water have the best chance of forming large harems; so desperate struggles take place between the males for the occupation of the best sites. In the fights the seals tear one another's skins with their teeth, so that by "what time the scarred sea-catchie lead their sleek seraglio," their skins are commercially worthless.

The females begin to arrive in the middle of June and continue coming until the end of July or the beginning of August. As soon as the females "haul" out of the sea, the old males begin a fierce competition for their possession. The bulls endeavour to attract them by cries and blandishments; and failing in this they seize them by the scruff of the neck with their teeth and carry them to their stations like kittens. Sometimes two bulls seize hold of the same cow, and then follows a tug of war, until the skin gives way, when one sea-catchie secures an addition to his harem and the other a strip of fur.

After the male has collected his harem, all his time is occupied in keeping it together and guarding it from other males, and they neither feed nor drink during the whole of the breeding season. The females give birth to pups within a few hours or days after their arrival; and afterwards they are at once ready to begin the development of another embryo. The period of gestation is about 355 days, but in spite of this the fur-seals can produce young every year, owing to the peculiar structure of the reproductive organs. It may be remembered that the only mammals in which the females have paired generative organs are a few of the lowest members of the class. But in the fur-seals, though there is only one uterus, this organ is bilobed, and thus acts as if there were a pair. For the young are developed alternately in the opposite lobes. Owing to the inordinate lust of the males, it is probably an exceptional occurrence for any female to return to sea unimpregnated. So that practically every female two years old or upward is always pregnant.

The pups when born are very helpless. They are unable to swim for a month or more, and are dependent on their mother's milk until the end of October or the beginning of November. Owing to the jealousy so strongly developed in the species, no mother will suckle any pup but her own. Hence, if a cow be killed between June and October, her pup inevitably starves to death,

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In fact, the greatest preventable loss of seal life at the present time is the starvation of pups by the killing of their mothers.

Pups, of course, die of other causes. In the early part of the season many thousands are trampled to death by the parents. In 1896 no less than 11,045 pups died on the Pribylov Islands between June and August, and their deaths in the main were due to trampling. But as the pups grow stronger and their parents return to sea the death-rate from this cause diminishes.

In the eastern half of the Behring Sea there is now a close time for seals, which ceases at the end of July. A healthy pup deprived of its mother's milk dies of starvation in about fourteen days, a fact proved by experiment by Elliot in 1872, and by Professors Jordan and Thompson last year. The pathological conditions caused by starvation were ascertained by the same test. In the early part of the season most of the dead pups examined were proved by *post mortem* examination to have been killed by trampling. But a fortnight after the end of the close time for seals in the eastern Behring Sea, the bodies of great numbers of starved pups were found on the rookeries, and a steady mortality from this cause continued until the end of last season's investigations. During last year's census the dead pups were counted twice, at the middle of August and the end of September. The census showed that 10,309 pups had died in the island of St. Paul during the nine-and-a-half weeks between the birth of the first pups and the first count; and that 12,233 died during the six weeks between the two counts, while 1527 pups were also found still alive but clearly dying from starvation.

So far we have been able to avoid disputed ground; the facts previously stated are admitted by both sides. But we now enter the domain of controversy. Is the whole or the greater part of this autumnal pup mortality due to pelagic sealing, or is it due to natural irremediable causes? Professor D. S. Jordan claims that practically the whole of it is due to the killing of the mothers at sea. Professor D'Arcy Thompson, on the other hand, in his able statement of the British position, claims that the autumnal mortality must be due to the action of the same causes as occasioned the earlier summer mortality.

Professor Jordan's claim may be exaggerated, but it is doubtful whether the exaggeration is serious. It is admitted that every matka killed between the end of July and the beginning of November entails the starvation of a pup; hence a considerable pup mortality by starvation is *a priori* a necessary consequence of the pelagic sealing under existing regulations. It is further admitted that the two principal causes of the summer pup mortality, viz., the crowded state of the rookeries and the fights between the sea-catchie, are removed before the middle of August. But the only certain test is section of the dead



pups; and, possibly, an insufficient number of these were examined to enable a final opinion to be expressed. Last year 122 pups were subjected to *post mortem* examination: of these, 103 had died during the earlier, and seventeen during the autumnal mortality; of the former, 30 per cent. were due to starvation, and of the latter 88 per cent.

It is conceivable that the conditions last year were exceptional; but the only statistics available at present favour the view that the killing of female seals at sea is the direct cause of the death of many pups on shore. Professor D'Arcy Thompson,\* in his report to the Foreign Office, tells us that "While I believe that there are sufficient discrepancies to indicate the presence of other factors in the case, yet it would, in my opinion, be useless to deny that the figures tend to corroborate the presumption that pelagic sealing is responsible for a large part of this autumnal mortality."

In fact, the killing of matkas is the most wasteful method of getting seal-skins. Their skins are smaller and less valuable than those of the males. After the end of the close time they are not in good condition, and each of these second-rate skins is procured at the price of three lives—a mother, a pup, and a foetus.

The killing of the non-breeding males, on the other hand, is ideally economical. The holluschickie are full grown, and their fur is in prime condition. The skins are larger than those of the females, and have not been torn in the fights that spoil the fur of the "scarred sea-catchie." The holluschickie, moreover, are not mating; and, provided sufficient are left to fill up the casualties in the ranks of the breeding males, the death of a holluschick has no more effect on the seal birth-rate than that of a barren cow or an ox has on the future of a herd of cattle. Indeed, the removal of the surplus males improves the herd, by lessening the severity of the fight for the females, and thus reducing the number of young trampled to death.

It follows, therefore, that the seal herds may be exploited to best advantage by adopting a system similar to that used in cattle-breeding. The females should be protected, and the take restricted to the surplus non-breeding males. Let us inquire how far the two rival methods of "seal fishery" conform to this principle.

How utterly Mr. Wilson fails to understand the American view of the case is shown by his complaint that "the press of the United States is filled with bitter attacks upon the wicked inhumanity of England in permitting the pelagic slaughter of the seal, but nothing is said of the presumably equally wicked inhumanity of the slaughter on land at the Pribylov Islands." Let us examine the method "of the presumably equally wicked inhumanity of the slaughter on land." In the first place, no females whatever are killed by man on the islands. The killing of females was absolutely prohibited by the

\* Parl. Pap. (c. 8426) United States, No. 3, 1897, p. 25.

Russian Government in 1847, and after the cession of the islands to the United States the same restriction was imposed on the lessees. The methods by which the seals are killed on the islands prevent any unnecessary suffering or waste. They resemble pheasant shooting more than "fishing." At intervals through the summer herds of holluschickie are driven from the "hauling grounds" where they live to the killing grounds. There they are sorted out: those with damaged skins are allowed to return to sea to serve as sea-catchie in future years; the others are despatched by a blow on the head with a club. Owing to the careful selection possible there is no waste of life whatever. Only surplus non-breeding males with perfect skins are taken; none are lost, and the fur is not injured.

Seal killing at sea cannot be so economical. Many of the seals escape with fatal wounds, especially in the western half of the Behring Sea, where the use of firearms is permitted. In the eastern area the seals are captured by harpoons, so that the skin is cut and damaged. The sex of the seal or any previous damage to its fur cannot be detected until the animal is dead. Moreover, as the female seals are less active, and are sometimes hampered by the presence of a pup, they are more easily killed than the males; hence it is only natural that the majority of seals killed at sea should be females.

The exact proportion of the two sexes killed at sea is matter of dispute. But it is admitted by both sides that while no females are killed on land, the majority—the Americans say a great majority—of those killed at sea are females. Complete figures are at present uncertain; but a comparison of the price fetched by the skins of the pelagic sealers with that given for the Pribylov Island skins, shows the inferior value of the former. In 1896 the Canadian catch realised in London an average of 32s. 2d., while the Pribylov Island skins sold in the same market before February fetched 68s. 1d. This great difference affords some idea as to the preponderance of female skins in the pelagic crop.

A comparison, therefore, of land and pelagic sealing shows that the former is economically satisfactory, and that the latter is extravagant and wasteful. Hence, if the present drain on the herd is excessive, protection must be given by some reform of pelagic sealing.

Assertions relating to the destruction of the herds have no doubt been recklessly exaggerated, while there have been many misunderstandings owing to looseness of phraseology. But the evidence seems conclusive that the herds have diminished in numbers. It is difficult to compare the records of naturalists who visited the islands about twenty years ago with existing conditions without feeling that the numbers have decreased. The Americans say that the decline is serious. Last year, for example, the lessees of the Pribylov Islands had no difficulty in making up their quota of 30,000 skins; but this year

they had to be content with 20,000. A reduction this year is especially significant in reference to the influence of pelagic sealing, as it is the generation born in 1894 that was available for killing, and in 1894 the pelagic catch reached its maximum of 135,000. Hence the decrease in the number of killable seals this year appears due to the excessive pelagic activity of 1894.

The question of decrease in the herd may be approached from another point of view. If the present drain on the herd is excessive, then a reduction in its numbers must result. Last year 143,000 pups were born to the Pribylov herd. In the same year 30,000 holluschickie were killed on the islands; 22,774 pups died there or were left starving by the beginning of October; 43,635 were killed at sea. Hence these three drains on the herd alone account for over 96,000. Many more pups no doubt die on the islands during October; others are drowned in the surf or fall a prey to killer-whales and sharks. Allowing for these and other such casualties, the number left for the reinforcement of the herd must be very small, if indeed there be any margin left. As the British Commissioner himself emphatically warns us, "It is my duty to state to your lordship that there is still abundant need for care and for prudent measures of conservation in the interests of all. A birth-rate which we estimate at 143,000 per annum is not great in comparison with the drain upon the stock. From one cause or another a loss of over 20,000 is experienced among the pups ere they emigrate to sea; and though the dangers they there encounter are unknown to us, we may take it for certain that the risks they run are great and the loss they endure considerable. When to the measured loss in infancy and the unmeasured loss in youth and age we add the toll taken on the islands and the toll taken in the sea, it is not difficult to believe that the margin of safety is a narrow one, if it be not already in some measure overstepped. We may hope for a perpetuation of the present numbers; we cannot count upon an increase. And it is my earnest hope that a recognition of mutual interests and a regard for the common advantage may suggest measures of prudence which shall keep the pursuit and slaughter of the animal within due and definite bounds."

Hence the biological evidence at present available shows that the United States has at least reasonable grounds for the following contentions:

1. That the Pribylov Islands seal herd is diminishing in size.
2. That the majority of the seals killed at sea are females.
3. That all females two or more years old are pregnant when killed.
4. That the death of any female seal three or more years old between June and November means the death of her pup by starvation.
5. That the deaths of the pups on the islands between August 15 and November are largely due to pelagic sealing.

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6. That therefore the regulations instituted by the Paris Award for the protection of the seals are inadequate.

If these conclusions be correct, then the condition of the sealing herds can only be improved either by extending the close time until the pups are weaned, or by prohibiting the killing of the female seals until the herds have again increased to such a size that wasteful methods may be risked. There is accordingly nothing unreasonable in the request of the United States that the existing regulations should be revised by the beginning of 1898 instead of in August of that year, when the sealing fleet would be already at sea.

It may be objected that these concessions would give the United States a great deal for nothing. But the commercial value of the industry is really insignificant. In 1896 the combined catch of the Canadian fleet and British North American Indians realised less than £90,000, and the expenses are estimated to have been considerably more. Lord Salisbury has already referred to the industry as on the verge of bankruptcy, and the only people who make much profit out of it at present are the London fur-dressers and fur-dealers. Practically all the seal-skins come to London for treatment and sale, and thus England is directly interested in the permanence of the industry.

A final reason why England should not adopt an obstructive attitude is that the United States can settle the whole question without any consultation with either Canada or England. A seal can easily be so branded that its skin is worth practically nothing in the fur market. During the present year a large number of pups and matkas have been branded during their stay on the Pribylov Islands. If the lessees of the islands choose to brand all the female pups and yearlings, they can complete the ruin of the pelagic sealing industry, at trivial cost to themselves, by a process to which no legal objection can be raised.

Hence, considering that the industry is commercially of no great importance, that the pelagic sealing involves the killing of pregnant females and the starving of their pups, and that the United States can settle the question over the heads of England and Canada, it seems a pity that the argument should be embittered by abuse of the United States. The question has been so simplified that the officials on both sides no doubt see the advisability of a friendly settlement. And it is to be hoped that the British press will give that fair open-minded consideration to the American claims that has marked the irreproachable attitude of the British Foreign Office.

A BRITISH NATURALIST.